

AMENDMENTS TO THE CLAIMS:

The following Listing of Claims replaces all previous claims and listings of claims in the application:

LISTING OF CLAIMS:

1-11. (Canceled)

12. (Currently Amended) A system for tracking multiple targets using distributed linear sensor arrays, comprising:

- a plurality of arrays of sensors for receiving signals from a target;
- a receiver for receiving signals received by the plurality of sensor arrays;
- an analog/digital converter for converting the signals received from the sensor arrays to a digital format, if signals are received in an analog format;
- a digital storage device for storing the digitized data from the sensor arrays; and
- a computer system for retrieving the stored digitized data from the plurality of sensor arrays and processing the data through the use of a composite Hough transform to determine a track of the target.

13. (Currently Amended) A system for tracking multiple targets using distributed linear sensor arrays, comprising:

- one or more arrays of sensors for receiving signals from a target;
- means for receiving signals received by the plurality of sensor arrays;
- means for converting the signals received from the sensor arrays to a digital format, if required;

means for storing the digitized data from the sensor arrays; and  
a computer system for retrieving the stored digitized data from the sensor arrays and processing the data through the use of a composite Hough transform to determine a track of the target.

14. (Previously Presented) A system, as in Claim 13, wherein the sensors for receiving signals from a target are acoustic sensors.

15. (Previously Presented) A system, as in Claim 13, wherein the sensors for receiving signals from a target are electromagnetic sensors.

16. (Previously Presented) A system, as in Claim 13, wherein the sensors for receiving signals from a target are optic sensors.

17. (Previously Presented) A system, as in Claim 13, wherein the receiver is an acoustic receiver.

18. (Previously Presented) A system, as in Claim 13, wherein the receiver is an sonar signal receiver.

19. (Previously Presented) A system, as in Claim 13, wherein the means for converting the signals received from the sensor arrays to a digital format, if required, is an analog-to-digital converter.

20. (Previously Presented) A system, as in Claim 13, wherein the means for storing the digitized data from the sensor arrays is a computer.

21. (Currently Amended) A computer system for processing digitized data to determine the track of a target comprising[[:]]:

a data storage device;

a computer for retrieving data from the data storage device, computing a hypothesis reference track relative to a primary sensor array[[:]], and for computing a ~~hypothesis~~ hypothesis reference track relative to ~~the a~~ a second sensor array;

said computer calculating an associated delay curve in a primary correlogram for the primary sensor array;

said computer calculating an associated delay curve in a secondary correlogram for a secondary array;

said computer accumulating data for the reference track by simultaneously integrating a series of pixel values along the appropriate delay curve in the primary and secondary correlograms;

said computer storing the accumulated pixel values in composite Hough space[[:]] and thresholding the accumulated pixel values to detect the track.

22. (Currently Amended) A computer system for processing digitized data to determine the track of a target comprising[[;]]:

a data storage device; and

a computer for retrieving data from the data storage device and

hypothesizing a track with track parameters values ( $\theta_1$ ,  $v$ ,  $D$ ,  $t_{01}$ );

generating a corresponding template delay curve in a primary correlogram;

performing integration along the template delay curve in the primary correlogram;

computing a delay curve parameter ( $\theta_2$ ,  $v/D$ ,  $t_{02}$ ) for a secondary array based on geometric constraints;

generating a corresponding template delay curve in a secondary correlogram based on the delay curve parameter ( $\theta_2$ ,  $v/D$ ,  $t_{02}$ );

performing integration along the template delay curve in the secondary correlogram and storing integrated values;

computing a delay curve parameter ( $\theta_{2m}$ ,  $v/D_{2m}$ ,  $t_{02m}$ ) for the secondary array based on geometric constraints;

generating a corresponding template delay curve in the secondary correlogram;

combining the integrated values and storing it in the corresponding composite Hough space; and

thresholding the accumulated pixel values to detect the track.

23. (New) A method of processing data from at least two sensor arrays to determine the track of a target comprising:

computing a hypothesis reference track relative to a primary sensor array;

computing a hypothesis reference track relative to a second sensor array;

calculating an associated delay curve in a primary correlogram for the primary sensor array;

calculating an associated delay curve in a secondary correlogram for a secondary array;

accumulating data for the reference track by integrating a series of pixel values along the appropriate delay curve in the primary and secondary correlograms;

storing the accumulated pixel values in composite Hough space; and

thresholding the accumulated pixel values to detect the track.